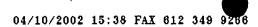
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- 5. The medical device of claim 1 wherein the polymer is selected from the group consisting of polyetheretherketones, polyacetals, polyamides, polypropylenes, polyurethanes, polytetrafluoroethylenes, polyester teraphthalates, polycarbonates, and polysulfones.
- 6. The medical device of claim 1 wherein the polymer has an average thickness of at least about 10 microns.
- 7. The medical device of claim 1 wherein the polymer has an average thickness from about 100 microns to about 2000 microns.
- 8. The medical device of claim 1 wherein the medical device comprises a heart valve prosthesis, the heart valve prosthesis comprising a component that comprises the composite having the inorganic substrate and the polymer material.
- 9. The medical device of claim 1 wherein the polymer material has structure forming a slot, hole, pin, button, barb or anchor.
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- 10. (Twice Amended) A medical device comprising a flexible composite component comprising an inorganic substrate and a polymer member covering at least a portion of the substrate, wherein the flexible composite component can be bent at least about 100 degrees without extending the flexible composite component beyond its elastic limit.
- 11. The medical device of claim 10 wherein the inorganic substrate comprises a metal foil with a thickness less than about 500 microns.



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- 12. The medical device of claim 10 wherein the polymer is selected from the group consisting of polyurethanes, polydimethylsiloxanes and polytetrafluoroethylenes.
- 13. The medical device of claim 10 wherein the polymer member has a thickness from about 10 microns to about 500 microns.
- 14. The medical device of claim 10 wherein the polymer member has a thickness from about 50 microns to about 300 microns.
- 15. The medical device of claim 10 wherein the medical device comprises a heart valve prosthesis and the composite component comprises leaflets.
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- 16. (Amended) The medical device of claim 10 wherein the flexible composite component can be bent about 180 degrees without extending the flexible composite component beyond its elastic limit.
- 17. (Twice Amended) The medical device of claim 10 wherein the flexible composite component can be bent about 180 degrees with a radius of curvature of about the thickness of the composite without extending the flexible composite component beyond its elastic limit.
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- 18. (Amended) The medical device of claim 10 wherein the flexible composite component can be bent about 60 degrees for about 40 million cycles without significant structural failure.